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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/735,172	12/12/2003	Jorg Schultz	01641/1200440-US2	1663
7278	7590	05/16/2005	EXAMINER	
DARBY & DARBY P.C. P. O. BOX 5257 NEW YORK, NY 10150-5257			SCHWARTZ, JORDAN MARC	
			ART UNIT	PAPER NUMBER
			2873	

DATE MAILED: 05/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/735,172

Applicant(s)

SCHULTZ ET AL.

Examiner

Jordan M. Schwartz

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 April 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-62 is/are pending in the application.
- 4a) Of the above claim(s) 21-62 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3/04, 6/04, 4/05.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restriction

Applicant's election with traverse of Group Ia, claims 1-20 in the Response to Supplemental Restriction received April 15, 2005 is acknowledged. The traversal is on the ground(s) that each of the species is a REMA objective and by searching Group Ia, the examiner must locate lenses with a condenser portion, intermediate portion and field lens portion which would be relevant to the other groups as well. This is not found persuasive because none of the Groups except for Group Id are claiming a condenser portion, an intermediate portion and a field lens portion and therefore, a search for Group Ia would not be required for any other non-elected group. Furthermore, Group Id is claiming a separate species of distinct structure and is not claiming each of the condenser portion, intermediate portion and field lens portion comprising one to two aspheric lens surfaces as the elected species.

The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 112

Claims 1, 4, 9, 11-12, 15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With reference to claims 1, 4, 9, 11-12, 15, the claimed "field lens portion" renders the claims vague and indefinite. Specifically, a field lens is defined (Photonics Dictionary) as "A lens situated at or near the plane of an internal image to project the

aperture of a previous objective or erector upon the aperture of a following lens”.

However, there is nothing within the specification or Figures disclosing the claimed “field lens” at or near the plane of an internal image nor is there anything within the specification or Figures disclosing an internal image at all. None of the figures disclose an internal image being formed nor is one disclosed in the specification. It is therefore not clear what applicant means by a “field lens” and the lack of clarity renders these claims vague and indefinite. For purposes of examination, since no internal image is disclosed, the assumed meaning of “a field lens portion” is “a most image side lens portion”.

With further reference to claim 11, the claimed “at a distance that is large enough for a deflecting mirror to be arranged” renders the claim vague and indefinite. It is not clear if applicant is claiming a deflecting mirror between the intermediate and most image side lens portion or merely claiming a space between (the latter being the assumed meaning). Furthermore, deflecting mirrors can be of all different sizes and if applicant is merely claiming a space between, the size of the space is not clear rendering the claim vague and indefinite. If the intended meaning is a deflecting mirror between, then it should be more positively and distinctly claimed and if the intended meaning is a spacing of a specific size then it too should be claimed more positively and distinctly claimed.

Claim Objections

Claim 10 is objected to for the following reason. Since the intended meaning could be determined from what is set forth in the specification, a 112 rejection was not made but instead this lack of clarity is set forth in the following claim objection.

Specifically, in reference to claim 10, the claimed "with values of $\sin(i)$ creates a lack of clarity since " $\sin(i)$ " is not defined in the claim. It is suggested that the claim be amended to state "with values of the sine of the chief ray angle, $\sin(i)$ in the range..." (as per the specification, page 31, line 1) to provide additional clarity.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2, 6-7, 11-13 and 17-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakagiri patent number 5,555,479.

Nakagiri reads on these claims by disclosing the limitations therein including the following: a REMA objective (column 1, line 8 to column 2, line 41, Figure 1); comprising a condenser portion (Figure 1, Groups I and II combined); an intermediate portion (Figure 1, Group III, the most object side optical element); a most image side lens portion (Figure 1, Group III, the last two lens elements); the objective having a total of no more than 10 lenses (Figure 1, example 1 or Figure 2, example 2); a combined total of no more than five aspheric surfaces (example 1 or example 2, re a total of four aspheric surfaces); each of the condenser portion, intermediate portion and most image

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side lens portion having one to two aspheric lens surfaces (examples 1 or 2); the condenser portion comprising at least one concave surface that is curved toward the object plane (Figure 1, the most object side lens element); the image side numerical aperture greater than 0.10 (column 9, line 52). The light conducting value of Nakagiri will inherently be greater than 10 mm, this being reasonably based upon Nakagiri disclosing the numerical aperture of 0.45 and Nakagiri will inherently have an image field diameter greater than 22 mm based upon Nakagiri disclosing the lens system for transferring a pattern of a mask onto a wafer similar to that of the claimed invention. An image field diameter of greater than 22 mm such as 23 mm, with a numerical aperture of 0.45 will provide a light conducting value greater than 10 mm. Nakagiri further discloses a spacing between the intermediate portion and the most image side portion (Figures 1 or 2) which would be able to accommodate a mirror of small size. Nakagiri further discloses the glass path length through the lenses not exceeding 30 percent of the distance between the object plane and the image plane (Figures 1 and 2, examples 1 and 2).

Double Patenting

Claims 1-20 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-29 of U.S. Patent No 6,366,410 (Schultz et al'410). Although the conflicting claims are not identical, they are not patentably distinct from each other for the following reasons.

U.S. Patent 6,366,410 reads on these claims by disclosing the following: the limitations of claim 1 (Schultz et al'410, claim 15); the limitations of claim 2 (Schultz et

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al'410, claims 9 and 15); the limitations of claim 3 (Schultz et al'410, claims 9 and 15); the limitations of claim 4 (Schultz et al'410, claim 25); the limitations of claim 5 (Schultz et al'410, claim 17); the limitations of claim 6 (Schultz et al'410, claim 18); the limitations of claim 7 (Schultz et al'410, claims 1 and 15); the limitations of claim 8 (Schultz et al'410, claim 20); the limitations of claim 9 (Schultz et al'410, claims 12 and 15); the limitations of claim 10 (Schultz et al'410, claims 13 and 15); the limitations of claim 11 (Schultz et al'410, claim 23); the limitations of claim 12 (Schultz et al'410, claims 4 and 15); the limitations of claim 13 (Schultz et al'410, claims 4, 9 and 15); the limitations of claim 14 (Schultz et al'410, claims 4, 9 and 15); the limitations of claim 15 (Schultz et al'410, claims 4 and 25); the limitations of claim 16 (Schultz et al'410, claims 4 and 17); the limitations of claim 17 (Schultz et al'410, claims 4 and 18); the limitations of claim 18 (Schultz et al'410, claims 4 and 15); the limitations of claim 19 (Schultz et al'410, claims 4, 6 and 15); and the limitations of claim 20 (Schultz et al'410, claims 4 and 15).

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Allowable Subject Matter

Claims 3, 5, 8, 10, 14, 16, and 19-20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims (and overcoming the double patenting rejection above).

Claims 4, 9 and 15 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims (and overcoming the double patenting rejection above).

The following is a statement of reasons for the indication of allowable subject matter: with respect to the allowable subject matter, none of the prior art either alone or in combination disclose or teach of the claimed combination of limitations to warrant a rejection under 35 USC 102 or 103. Specifically, with reference to claims 3 and 14, none of the prior art either alone or in combination, disclose or teach of the claimed REMA objective specifically including, as the distinguishing feature in combination with

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the other limitations, the claimed condenser portion comprising at least one concave surface toward the object plane in which the ratio of the radius of curvature to the lens diameter is smaller than 0.65. Specifically, with reference to claims 4 and 15, none of the prior art either alone or in combination, disclose or teach of the claimed REMA objective specifically including, as the distinguishing feature in combination with the other limitations, the most image side lens portion (the assumed meaning) comprising a collecting lens and a divergent lens. Specifically, with reference to claims 5 and 16, none of the prior art either alone or in combination, disclose or teach of the claimed REMA objective specifically including, as the distinguishing feature in combination with the other limitations, image field diameter greater than 80 mm. Specifically, with reference to claims 8 and 20, none of the prior art either alone or in combination, disclose or teach of the claimed REMA objective specifically including, as the distinguishing feature in combination with the other limitations, the claimed bright/dark edge having a transition zone in which a 5% brightness level and a 95% brightness level are mutually separated by less than 2% of the image field diameter. Specifically, with reference to claim 9, none of the prior art either alone or in combination, disclose or teach of the claimed REMA objective specifically including, as the distinguishing feature in combination with the other limitations, the condenser portion configured an anterior partial objective with a condenser portion image plane at infinity and a diaphragm that lies in the object plane of the REMA objective. Specifically, with reference to claims 10, none of the prior art either alone or in combination, disclose or teach of the claimed REMA objective specifically including, as the distinguishing feature in combination with

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the other limitations, a predetermined pupil function with values of the sine of the chief ray angle, $\sin(i)$ in the range of plus or minus 10 mrad with deviations less than plus or minus 1 mrad. Specifically, with reference to claim 19, none of the prior art either alone or in combination, disclose or teach of the claimed REMA objective specifically including, as the distinguishing feature in combination with the other limitations, the maximum amount of the sine of the angle of incidence of a marginal ray in air relative to the surface normal exceeds 0.6 times the numerical aperture on the object side.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jordan M. Schwartz whose telephone number is (571) 272-2337. The examiner can normally be reached on Monday to Friday (8:30 to 4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Y. Epps can be reached at (571) 272-2328. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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A handwritten signature in black ink, appearing to read 'J. Schwartz', with a large, stylized flourish at the end.

Jordan M. Schwartz

Primary Examiner

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May 11, 2005